FORRESTER®

The Forrester Wave™: Big Data NoSQL, Q1 2019

The 15 Providers That Matter Most And How They Stack Up

by Noel Yuhanna
March 14, 2019

Why Read This Report

NoSQL has become critical for all businesses to support modern business applications. In our 26-criterion evaluation of NoSQL providers, we identified the 15 most significant ones — Aerospike, Amazon Web Services (AWS), ArangoDB, Couchbase, DataStax, Google, IBM, MarkLogic, Microsoft, MongoDB, Neo4j, Oracle, RavenDB, Redis Labs, and SAP — and researched, analyzed, and scored them. This report shows how each provider measures up and helps enterprise architecture (EA) professionals select the right one for their needs.

Key Takeaways

MongoDB, Microsoft, Couchbase, AWS, Google, And Redis Labs Lead The Pack
Forrester's research uncovered a market in which MongoDB, Microsoft, Couchbase, AWS, Google, and Redis Labs are Leaders; MarkLogic, DataStax, Aerospike, Oracle, Neo4j, and IBM are Strong Performers; and SAP, ArangoDB, and RavenDB are Contenders.

Performance, Scalability, Multimodel, And Security Are Key Differentiators
The Leaders we identified support a broader set of use cases, automation, good scalability and performance, and security offerings. The Strong Performers have turned up the heat on the incumbents. Contenders offer lower costs and are ramping up their core NoSQL functionality.

The Forrester Wave™: Big Data NoSQL, Q1 2019
The 15 Providers That Matter Most And How They Stack Up

by Noel Yuhanna
with Gene Leganza and Robert Perdoni

Table Of Contents

Related Research Documents

The Forrester Wave™: Cloud Data Warehouse, Q4 2018

The Forrester Wave™: Cloud Hadoop/Spark Platforms, Q1 2019

The Forrester Wave™: Translytical Data Platforms, Q4 2017

Share reports with colleagues.
Enhance your membership with Research Share.

The Rise Of Big Data NoSQL Platforms

NoSQL is more than a decade old. It has gone from supporting simple schemaless apps to becoming a mission-critical data platform for large Fortune 1000 companies. It has already disrupted the database market, which was dominated for decades by relational database vendors. Today, half of global data and analytics technology decision makers either have implemented or are implementing NoSQL platforms, taking advantage of the benefits of a flexible database that serves a broad range of use cases.[1] Enterprises like NoSQL's ability to scale out using low-cost servers and a flexible, schemaless model that can store, process, and access any type of business data. NoSQL platforms give EA pros greater control over data storage and processing, along with a configuration that accelerates application deployments. While many organizations are complementing their relational databases with NoSQL, some have started to replace them to support improved performance, scale, and lower their database costs.

Forrester defines big data NoSQL as:

> *A nonrelational database management system that provides storage, processing, and accessing of any type of data and which supports a horizontal, scale-out architecture based on a schemaless and flexible data model.*

NoSQL Vendors Continue To Deliver Enterprise Features To Support Complex Workloads

NoSQL covers a range of nonrelational databases, such as key-value, document, and graph databases, that are optimized for a new generation of business apps, including social media, customer 360, advanced insights, real-time, and operational apps. NoSQL vendors are delivering innovative features, such as AI and machine learning automation, integration with Apache Spark and streaming technology, support for SQL and simplified APIs, and extensive administrative tools. Enterprises seeking NoSQL platforms should look for vendors that:

› **Focus on AI/machine learning automation deployment capabilities.** With organizations ramping up their NoSQL database deployments, the need for greater automation has become critical. This includes automating provisioning, tuning, optimization, indexing, patching, upgrading, high availability, and security. These capabilities not only accelerate deployments; they also support larger and more complex applications with minimal effort. Enterprise buyers should take heed of the various differences in AI/machine learning automation offerings and carefully map them to their specific requirements, now and for the future.

› **Press the advantages of open source.** Digital transformation often runs on open source software.[2] Today, open source NoSQL solutions are stable and ready for primetime. Enterprises like NoSQL's rapidly evolving ecosystem, low cost, minimized vendor lock-in, and easier customization for complex deployments. While many NoSQL vendors offer open source solutions, look for vendors that lead active NoSQL communities, contribute software to enhance the open source platform, and engage with customers to drive innovation. Pricing, packaging, and support services also differentiate the vendors.

› **Integrate with large ecosystems for tools and technologies.** NoSQL databases are the foundation on which to build great, modern business applications and support advanced insights. However, NoSQL needs a strong ecosystem of tools and technologies offered by partners that can help accelerate deployments. These include tools to support data integration, data quality, security, governance, distributed management, and data pipelining. When acquiring a NoSQL platform, EA pros should look at the breadth and depth of partnerships the vendor supports to take advantage of their tools and services.

Evaluation Summary

The Forrester Wave evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market and does not represent the entire vendor landscape. You'll find more information about this market in our overview report on NoSQL providers.[3]

We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figure 1 and see Figure 2). Click the link at the beginning of this report on Forrester.com to download the tool.
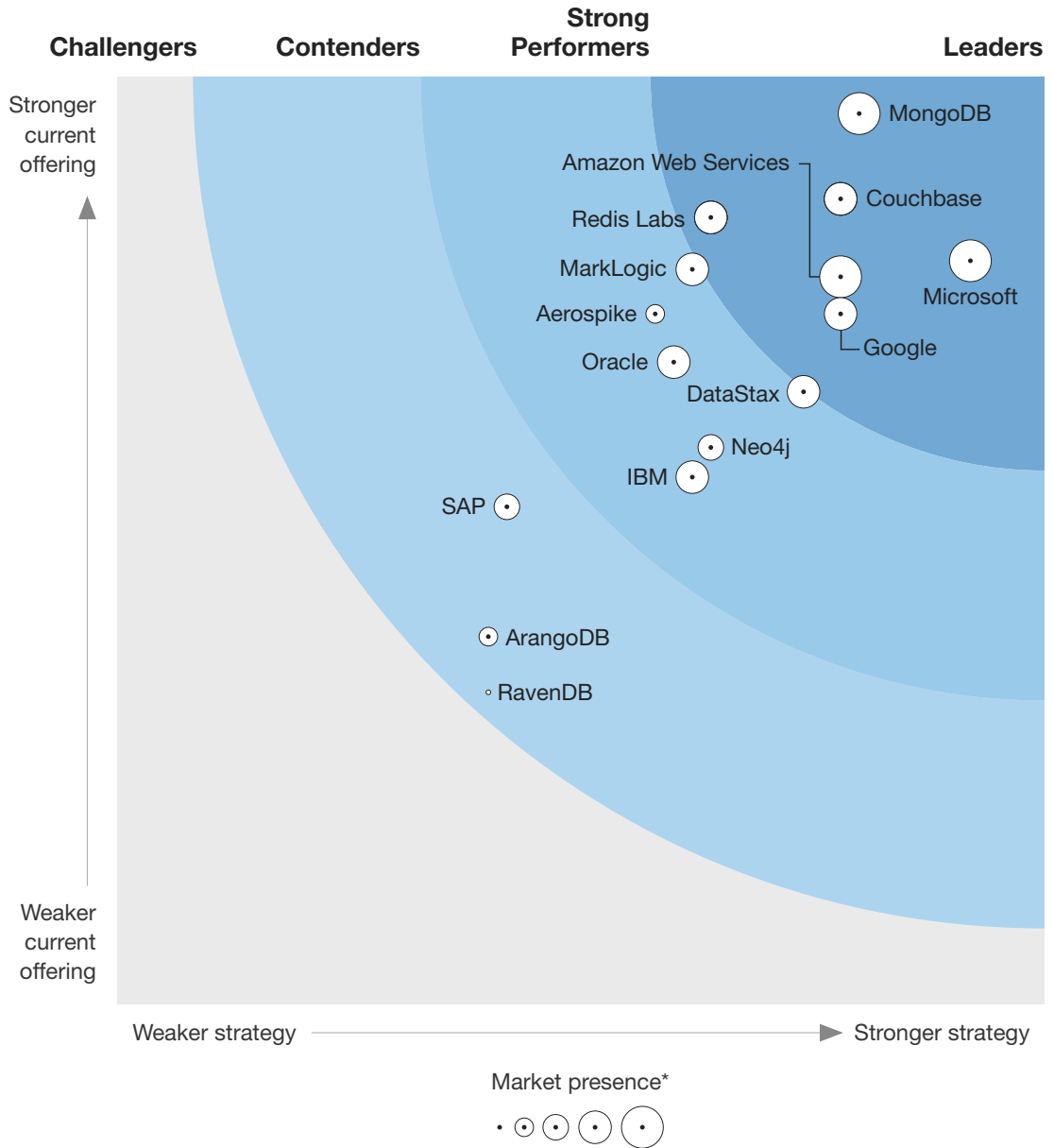
THE FORRESTER WAVE™

Big Data NoSQL

Q1 2019

FIGURE 2 Forrester Wave™: Big Data NoSQL Scorecard, Q1 2019

	Forrester's weighting	Aerospike	Amazon Web Services	ArangoDB	Couchbase	DataStax	Google	IBM	MarkLogic
Current offering	50%	3.72	3.92	1.98	4.34	3.30	3.72	2.84	3.96
Development	40%	3.30	4.10	3.00	3.50	3.00	3.30	2.30	4.50
Deployment	60%	4.00	3.80	1.30	4.90	3.50	4.00	3.20	3.60
Strategy	50%	2.90	3.90	2.00	3.90	3.70	3.90	3.10	3.10
Ability to execute	35%	3.00	5.00	3.00	5.00	5.00	5.00	3.00	3.00
Road map	45%	3.00	3.00	1.00	3.00	3.00	3.00	3.00	3.00
Professional services	5%	1.00	5.00	1.00	1.00	1.00	5.00	3.00	3.00
Open source	10%	3.00	3.00	3.00	5.00	3.00	3.00	3.00	3.00
Technical support	5%	3.00	5.00	3.00	5.00	5.00	5.00	5.00	5.00
Market presence	0%	1.70	5.00	1.50	3.00	3.60	3.90	3.90	3.70
Product revenue	30%	1.00	5.00	1.00	1.00	3.00	3.00	3.00	3.00
Install base	30%	1.00	5.00	1.00	3.00	3.00	5.00	5.00	5.00
Market awareness	25%	3.00	5.00	3.00	5.00	5.00	3.00	3.00	3.00
Partnerships	10%	1.00	5.00	1.00	3.00	3.00	5.00	5.00	3.00
Reach	5%	5.00	5.00	1.00	5.00	5.00	5.00	5.00	5.00

All scores are based on a scale of 0 (weak) to 5 (strong).

FIGURE 2 Forrester Wave™: Big Data NoSQL Scorecard, Q1 2019 (Cont.)

	Forrester's weighting	Microsoft	MongoDB	Neo4j	Oracle	RavenDB*	Redis Labs	SAP
Current offering	50%	4.00	4.80	3.00	3.46	1.68	4.24	2.68
Development	40%	4.00	4.50	3.00	3.40	2.40	3.70	3.40
Deployment	60%	4.00	5.00	3.00	3.50	1.20	4.60	2.20
Strategy	50%	4.60	4.00	3.20	3.00	2.00	3.20	2.10
Ability to execute	35%	5.00	5.00	3.00	3.00	1.00	3.00	3.00
Road map	45%	5.00	3.00	3.00	3.00	3.00	3.00	1.00
Professional services	5%	5.00	3.00	1.00	3.00	1.00	1.00	3.00
Open source	10%	1.00	5.00	5.00	3.00	1.00	5.00	3.00
Technical support	5%	5.00	5.00	5.00	3.00	3.00	5.00	3.00
Market presence	0%	4.40	4.40	2.90	3.70	1.00	3.60	2.70
Product revenue	30%	3.00	3.00	1.00	3.00	1.00	1.00	1.00
Install base	30%	5.00	5.00	3.00	5.00	1.00	5.00	3.00
Market awareness	25%	5.00	5.00	5.00	3.00	1.00	5.00	3.00
Partnerships	10%	5.00	5.00	3.00	3.00	1.00	3.00	5.00
Reach	5%	5.00	5.00	3.00	5.00	1.00	5.00	5.00

All scores are based on a scale of 0 (weak) to 5 (strong).
*Indicates a nonparticipating vendor.

Vendor Offerings

Forrester included 15 vendors in this assessment: Aerospike, Amazon Web Services, Arango DB, Couchbase, DataStax, Google, IBM, MarkLogic, Microsoft, MongoDB, Neo4j, Oracle, RavenDB, Redis Labs, and SAP (see Figure 3).

FIGURE 3 Evaluated Vendors And Product Information

Official company name	Product evaluated
Aerospike	Aerospike Database
Amazon Web Services (AWS)	DynamoDB
ArangoDB	ArangoDB
Couchbase	Couchbase
DataStax	DataStax
Google	Cloud Firestore
IBM	Cloudant
MarkLogic	MarkLogic
Microsoft	Azure Cosmos DB
MongoDB	MongoDB
Neo4j	Neo4j Enterprise Edition
Oracle	Oracle NoSQL
RavenDB	Hibernating Rhinos
Redis Labs	Redis Enterprise
SAP	OrientDB

Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

› **MongoDB remains the most popular NoSQL database.** MongoDB is used by more than 8,000 companies, including many Fortune 100 companies. It is popular among app developers largely because of its ease of use, simplified model, on-demand and elastic scale, multicloud support, and comprehensive tooling. With the release of 4.0, MongoDB offers multidocument ACID transactions. It supports autosharding, built-in replication, search, and mixed-workload capabilities.

Top use cases include 360-degree analytics, real-time analytics, streaming analytics, fraud and risk management, and other multiple workloads. Customer references like MongoDB's innovative features, faster time-to-value platform, and technical support.

› **Microsoft starts to get strong traction with Azure Cosmos DB.** Azure Cosmos DB is Microsoft's globally distributed, multimodel database that enables users to elastically scale compute and storage across Azure geographic regions. As a foundational Azure service, it is available in all Azure regions. Its simplified database with relaxed consistency levels and low-latency access makes it easier to develop globally distributed apps. Cosmos DB automatically indexes all data without requiring schema or secondary indices, supports rich SQL and JavaScript queries, and offers multidocument ACID transactions. Customer references like its resilience, low maintenance, cost effectiveness, high scalability, multimodel support, and faster time-to-value. They use Cosmos DB for operational apps, real-time analytics, streaming analytics, and internet-of-things (IoT) analytics.

› **Couchbase has a high-performance and scalable NoSQL offering.** Couchbase is an open source, distributed, multimodel NoSQL database that is optimized for interactive applications. Couchbase is designed to provide easy-to-scale key-value or document storage, processing, and access with low-latency requirements. Firms use Couchbase to support massively interactive use cases, some of which include social and mobile/IoT applications, healthcare, financial services, content and metadata stores, eCommerce, and online gaming applications. Couchbase provides full support for documents, a flexible data model, indexing, full-text search, and MapReduce for real-time analytics. Customer references use Couchbase to support various mission-critical workloads, including operational, analytical, and mixed workloads.

› **Amazon Web Services offers several NoSQL databases to support various use cases.** AWS DynamoDB is a fully managed NoSQL database-as-a-service (DBaaS) that is deployed across various types of workloads, including operational, transactional, and analytical. It automatically shards the data across a compute farm to support large-scale, high-performance database deployments. DynamoDB is tightly integrated with AWS EMR and AWS S3, offering the ability to store and run big data initiatives. DynamoDB natively supports both key-value and document models and geospatial data sets. Besides DynamoDB, AWS also offers other NoSQL databases such as Neptune, a graph database, and a time-series database. Enterprises use DynamoDB to support social media apps, gaming, real-time and operational workloads, IoT apps, and other eCommerce apps. Customer references like DynamoDB's support, performance, scale, and high availability.

› **Google offers multiple NoSQL database solutions.** Google offers two NoSQL platforms: Cloud Firestore and Cloud Bigtable. Google Cloud Firestore is a serverless, schema-agnostic database that supports automatic sharding, high availability, ACID transactions, strong consistency, SQL-like queries, indexes, and durability for various types of workloads, but it's targeted at mobile, web, and IoT apps. Cloud Bigtable is scalable, wide-column database service — the same database that powers many Google services, such as Search, Analytics, Maps, and Gmail. Cloud Bigtable scales to handle massive workloads at consistent low latency and high throughput for both operational

and analytical applications, including IoT, user analytics, advertising technology (adtech), and financial data analysis. Customer references like Google's performance, developer-level flexibility, automated scalability, and ease of use.

› **Redis Labs delivers a high-performing NoSQL database.** Redis is a multimodel, open source, in-memory database platform whose key development is currently sponsored by Redis Labs. Redis supports both relaxed and strong consistency, a flexible schemaless model, high availability, and ease of deployment. An enterprise version encapsulates the open source software and provides additional capabilities for geodistributed active-active deployments (multicloud, hybrid, on-premises) with high availability and linear scaling, while supporting the open source API. Companies use Redis for customer 360, machine learning, IoT, search, and real-time analytics as well as for eCommerce, social metering solutions, and other use cases. Customer references like its innovation for machine learning apps, performance, scale, customer support, and support for diverse NoSQL use cases.

Strong Performers

› **MarkLogic offers a mature NoSQL database for various use cases.** MarkLogic is the only NoSQL document database vendor that has offered a NoSQL product for more than a decade. It provides enterprise-class capabilities to store, process, and access all kinds of data sets for a variety of use cases. MarkLogic runs on on-premises, hybrid-cloud, and multicloud platforms, including AWS, Azure, and Google Cloud Platform. Customers most commonly deploy MarkLogic for mixed workloads — including transactional, analytical, and operational. Some use it for customer 360 analytics, healthcare analytics, real-time analytics, fraud detection, information discovery, content delivery, and digital supply chain management. Customer references like its ability to eliminate data silos, faster time-to-value, security, search, and simplicity.

› **DataStax delivers a viable NoSQL geodistributed database.** DataStax distributes, contributes, and supports the commercial enterprise version of Apache Cassandra, an open source project. DataStax continues to execute well to support global apps that demand low-latency access to critical data. DataStax Enterprise (DSE) has a masterless, shared-nothing architecture with multimodel and in-memory capabilities, along with built-in analytics and enterprise search that can run on-premises or in the cloud. DataStax supports various types of business applications, including transactional, analytical, translytical, predictive analytics, graph, and mixed workloads. Top use cases include fraud detection, product catalogs, consumer personalization, recommendation engines, and IoT apps. Customer references like its distributed architecture, technical support, performance, and low cost of ownership.

› **Aerospike leverages memory to support high-performance NoSQL.** Aerospike is a key-value distributed NoSQL database that provides horizontal scale and features a multitiered storage engine, hybrid-memory architecture designed for all-DRAM, DRAM/Flash, and all-Flash storage. It's deployed at scale in public and private clouds — as well as in data centers — and is provided as

a dual-license product. Aerospike is used by enterprises in financial services, telecommunications, technology, retail, eCommerce, adtech, and gaming. Use cases include recommendations engines, digital payments, fraud detection, and other real-time applications. Customer references like its speed, ease of scale, support, low latency, high-availability access and simplified storage, and access for strategic operational applications.

› **Oracle's NoSQL is a viable option for Oracle customers.** Oracle NoSQL database appeals to companies looking for ACID transactions; geodistributed data; granular security controls; and integration with Oracle Database, Oracle Wallet, Spark, and Hadoop. Oracle NoSQL has its roots as a key-value database, but it also supports wide-column tables, schemaless JSON, and property graph data models, delivering excellent performance, scale, security, and high availability. Many Oracle customers use Oracle NoSQL to balance the need for scale-out workloads of simpler key-value data with the rich set of relational data management capabilities needed in their core business systems — or when supporting new applications that have frequently changing key-value data, such as profiles for fraud detection, customer 360, and IoT apps.

› **Neo4j is a popular NoSQL graph database that supports many use cases.** Neo4j provides an open source property graph database and has an enterprise edition that includes clustering, multiple geographies, and security as well as extensions that support graph analytics and algorithms, visual graph discovery and exploration, and big data integration. Thousands of community deployments and more than 300 customers harness connected data with Neo4j. Neo4j is driving a multivendor initiative to develop an ISO/WG3 standard Graph Query Language with contribution from its Cypher language and the openCypher.org community project. Customer references like its native storage and processing of graph data models and its full ACID-compliant, flexible data models, and high performance for connected data. Customers often use it for real-time recommendations, AI, graph-based search, social networking, IoT analytics, fraud detection, and master data management.

› **IBM Cloudant is a viable cloud NoSQL offering.** IBM acquired Cloudant in 2014 to expand its DBaaS and support various NoSQL cases. IBM Cloudant is a fully managed NoSQL document database that is compatible with Apache CouchDB. Cloudant documents are stored in triplicate across three separate availability zones for in-region high availability and disaster recovery. Customers use Cloudant for real-time analytics, IoT analytics, streaming analytics, and operational workloads. IBM provides hosting, administrative tools, analytics, and support for Cloudant, and it has deployments spread across a variety of industries, including financial services, gaming, manufacturers, telcos, retailers, and healthcare.

Contenders

› **SAP offers a new multimodel NoSQL database: OrientDB.** SAP acquired Callidus Software in 2018, which in turn acquired OrientDB in 2017.[4] OrientDB is the key contributor to and supporter of OrientDB, an open source, multimodel NoSQL database written in Java that was first released

in 2010. OrientDB supports schemaless, hybrid, and schema-based models and leverages SQL as a query language in addition to Gremlin and SPARQL. OrientDB has a fully ACID-compliant graph database to support transactional and operational use cases. Customer references mention its multimodel engine, ease of use, reliable performance, and small footprint as core strengths. Key use cases for OrientDB include asset management, network management, cybersecurity, social networking, recommendation engines, and fraud detection.

› **ArangoDB offers good NoSQL databases for specific use cases.** ArangoDB is a multimodel NoSQL database that supports key-value, document, and graph data models with one database core and a unified query language called AQL. ArangoDB provides scalable queries when working with graph data. ArangoDB can be deployed on-premises and in the cloud, including AWS, Google Cloud Platform, and Microsoft Azure. Customer references like its graph support, flexible data model, query language, and simple approach. They use ArangoDB for transactional, operational workloads, and they like its faster time-to-value for business initiatives.

› **RavenDB has a viable transactional NoSQL database.** Hibernating Rhinos, a database provider, offers RavenDB a NoSQL transactional database that supports document, key-value, and graph data models. RavenDB runs on-premises and in the cloud, including AWS and Azure. It offers support for spatial data, full-text search, popular programming and query languages, and various security features. RavenDB declined to participate in our research.

Evaluation Overview

We evaluated vendors against 26 criteria, which we grouped into three high-level categories:

› **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions are data types, application development, streaming, data consistency, self-service and automation, transactions, data security, multimodel, architecture, performance, scalability, global distributed, high availability/ disaster recovery, tooling, workloads, and use cases.

› **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated ability to execute, road map, professional services, open source, and technical support.

› **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's product revenue, install base, market awareness, partnerships, and reach.

Vendor Inclusion Criteria

Forrester included 15 vendors in the assessment: Aerospike, Amazon Web Services, ArangoDB, Couchbase, DataStax, Google, IBM, MarkLogic, Microsoft, MongoDB, Neo4j, Oracle, RavenDB, Redis Labs, and SAP. Each of these vendors:

› **Offers a comprehensive, enterprise-class NoSQL database.** The vendor must offer the following core NoSQL components, tools, and features: 1) support for core NoSQL features and functionality, including high availability, concurrency, security, performance, scalability and administration; 2) support for data storage for persistence, integrity, storage, backup, and access; 3) native tools developed by the vendor or integration with third-party vendors to support data loading, unloading, security management, integration, data quality, archiving, etc.; 4) support for ACID compliance or eventually consistency; 5) support for a flexible data model; 6) support for multiple concurrent queries, transactions, and operational reporting; and 7) the ability to be deployed on-premises, in the cloud, or both.

› **Provides a standalone NoSQL solution.** The solution isn't technologically tied or bundled to any particular application, product, or solution. Vendors must market the NoSQL solution as a standalone product. A customer must be able to buy the NoSQL solution independent of other products.

› **Has a referenceable install base.** Evaluated vendors have 25 or more unique enterprise customers using the NoSQL product that span more than one major geographical region.

› **Is publicly available.** The participating vendors must have actively marketed their NoSQL product as of November 1, 2018.

› **Has customer interest.** Forrester included only vendors that were mentioned several times by customers during Forrester inquiry calls during the past 12 months.

› **Has client inquiries and/or technologies that put the vendor on Forrester's radar.** Forrester clients often discuss the vendors and products through inquiries and interviews; alternatively, the vendor may, in Forrester's judgment, warrant inclusion or exclusion in this evaluation because of technology trends and market presence.

Engage With An Analyst

Gain greater confidence in your decisions by working with Forrester thought leaders to apply our research to your specific business and technology initiatives.

Analyst Inquiry

To help you put research into practice, connect with an analyst to discuss your questions in a 30-minute phone session — or opt for a response via email.

Learn more.

Analyst Advisory

Translate research into action by working with an analyst on a specific engagement in the form of custom strategy sessions, workshops, or speeches.

Learn more.

Webinar

Join our online sessions on the latest research affecting your business. Each call includes analyst Q&A and slides and is available on-demand.

Learn more.

Forrester's research apps for iOS and Android.
Stay ahead of your competition no matter where you are.

Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows The Forrester Wave™ Methodology Guide to evaluate participating vendors.

In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by December 19, 2019, and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with The Forrester Wave™ Vendor Review Policy, Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with The Forrester Wave™ And The Forrester New Wave™ Nonparticipating And Incomplete Participation Vendor Policy and publish their positioning along with those of the participating vendors.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with the Integrity Policy posted on our website.

Endnotes

[1] Source: Forrester Analytics Global Business Technographics® Data And Analytics Survey, 2018.

[2] See the Forrester report "The I&O Pro's Guide To Enterprise Open Source Cloud Adoption, Q1 2018."

[3] See the Forrester report "Vendor Landscape: Graph Databases."

[4] Source: "SAP Completes Acquisition of Callidus Software Inc.," SAP press release, April 5, 2018 (https://news.sap.com/2018/04/sap-completes-acquisition-of-callidus-software-inc/).

We work with business and technology leaders to develop customer-obsessed strategies that drive growth.

PRODUCTS AND SERVICES

› Core research and tools
› Data and analytics
› Peer collaboration
› Analyst engagement
› Consulting
› Events

Forrester's research and insights are tailored to your role and critical business initiatives.

ROLES WE SERVE

Marketing & Strategy Professionals	**Technology Management Professionals**	**Technology Industry Professionals**
CMO	CIO	Analyst Relations
B2B Marketing	Application Development & Delivery	
B2C Marketing	› Enterprise Architecture	
Customer Experience	Infrastructure & Operations	
Customer Insights	Security & Risk	
eBusiness & Channel Strategy	Sourcing & Vendor Management	

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866-367-7378, +1 617-613-5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.